Lake County, IL Flood Risk Management Project

Lake County Stormwater Management Commission (SMC)

July 21, 2005



Table of Contents

Methodology	.:
Dataset Comparison	10
Results	12
Figures	
Figure 1 Polygon Selection Methodology	.5
Tables	
Table 1	11
Figures the following figures are shown in Appendix B of the County-Wide All Natural Hazara	l
Mitigation Plan (2005) for Lake County	
Figure 3-15 Structures in Floodplains	
Figure 3-16 Structures in Floodways	
Figure 3-17 Structures >1000 Square Feet in Floodplains	
Figure 3-18 Structures >1000 Square Feet in Floodways	
Figure 3-19 Structure Types in Floodplains	
Figure 3-20 Population 2000 in Floodplains	
Figure 3-21 Population 2000 in Floodways	
Figure 3-22 Children Under 5 Residing in Floodplains	
Figure 3-23 Adults Over 65 Residing in Floodplains	
Figure 3-24 Critical Structures in Floodplains	
Figure 3-25 Critical Structures in Floodways	
Figure 3-26 Flood Audit Locations	
Figure 3-27 Flood Audit Locations in Floodplains	
Figure 3-28 Flood Audit Locations in Floodways	
Figure 3-29 Floodplain Land Use	
Figure 3-30 Floodway Land Use	

Methodology

In Geographical Information Systems (GIS) there are three types of feature classes: point, polyline, and polygon data.

Point data in this study, for example, is a dot given for each critical structure in Figures 3-22 and 3-23. A point only references a location; it does not supply the analyst with any information such as distance, area, or perimeter. A point does not cover spatial distance like polyline or polygon data, it is location specific or absolute, this means that there is no variance in its location. Point data is the simplest type of feature class and is the easiest to select in and out of areas.

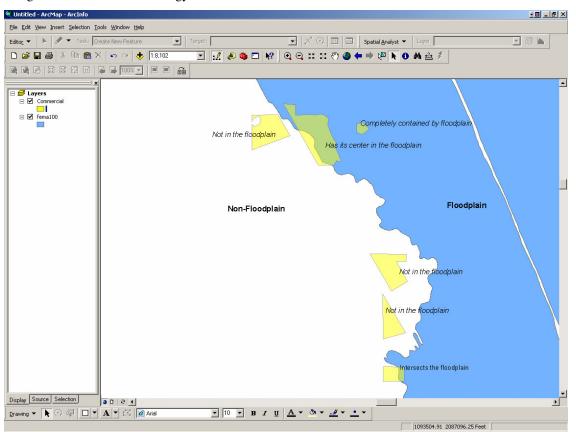
Polyline is line data, such as roads, rivers, and routes. This study did not use polyline data in any analysis, but it was used in showing major roads in many of the figures. Polyline data is used to show distance between locations. The major road data (as used in this study) attributes distance to every road in the dataset.

When line data is connected into an enclosed feature, it is referred to as polygon data. Polygon data must be an enclosed feature, such as a rectangle, an octagon, or any feature with countless vertices or a smoothed feature. Polygon data is used in Figures 3-15 through 3-30, including watershed and subwatershed areas, parcel and population data, and land use data. Polygon data contains information such as area and perimeter of the data, but it does not exhibit specific spatial information as does point data. This means that it distributes information over an area, but does not provide information on where something specifically resides within the area.

For example, in population data, a polygon may contain 200 people over an area of 120 acres. The problem with this feature is that the 120 acre polygon does not show where the 200 people are residing within the polygon. When the FEMA 100-year floodplain data, also polygon data, is overlaid onto 40% of the population polygon, the amount of people residing within 40% polygon the 200 people live. There may be exactly 40% (80 people) of the population polygon residing in that area or there could be two people residing in that 40% section. There is no way to determine where the people reside in the polygon.

However, ArcGIS provides the analyst with a tool that allows for certain polygons to be accepted or excluded by where they are located in relation to a boundary such as floodplain and floodway boundary data. When Selecting by Location, identifiers such as {does a polygon have its center located in the floodplain} or {does the population polygon intersect the floodplain} or {does the floodplain completely contain the population polygon} or {does the center reside within the floodplain} had to be used. [Figure 1 shows the identifiers visually as they would be used within the GIS]. In the instance of intersecting {does the polygon intersect the floodplain identifier} the population polygon with the floodplain polygon, the floodplain population estimates result in larger values than when using a {completely contained}





identifier, which results in smaller conservative values. For the most part, the identifier *[does the*] center reside within the floodplain} is the most accurate and was used extensively in this study. It allows for population polygons that have 50% or greater of their area within the floodplain polygon to be assigned as residing within the floodplain. The identifier *(does the center reside)* within the floodplain omits polygons with less than 50% of their area within the floodplain boundary. This identifier allows for the population polygons with the majority of their area within the boundary to be accepted, but polygons that only have a small amount of their area inside the boundary to be omitted. It still leaves some room for error, but the identifier is the best possible operation in the context of overlaying polygons in this project.

The following gives more insight on each individual figures methodology in this project and used in the County-Wide All Natural Hazard Mitigation Plan (2005) for Lake County.

Figures 3-15, 3-16, 3-17, and 3-18

Figures 3-15 and 3-16 display the structures located within the Lake County floodplain and floodway. This was achieved by overlaying the Lake County planimetrics (point data) dataset with FEMA 100-year floodplain and floodway boundaries and intersecting the two datasets to provide the number of structures residing within the floodplain and floodway. The data was then separated into respective watersheds by spatially joining the buildings within the floodplain and floodway with the watershed boundary dataset. The buildings in these two figures include all buildings, even those with an area less than 1000 square feet. This allows for all buildings to be shown, including buildings such as water towers and sheds, because even these structures could be damaged significantly in flood events. Buildings were added to this figure as an update of the 2004 planimetric data during a manual scan of the Lake County 2004 air photograph.

Figures 3-17 and 3-18 display the same data as Figures 3-15 and 3-16, however, buildings less than 1000 square feet were excluded from the figures. This was done to select out structures such as garages, sheds, water towers, doghouses, etc. that would not have had assessed buildings values within the parcel data and to prevent duplicate market values, which will be discussed in more length under Figure 3-19. This mapping iteration was also done to reach commonality with the Lake County Department of Information and Technology, GIS and Mapping Division data that had selected out structures less than 1000 square feet.

Figure 3-19

Figure 3-19 utilized the buildings residing in the floodplain dataset from Figure 3-15 and joined that with the Lake County parcel dataset that contains building assessed values. After joining the structure and parcel data one significant problem was identified. The parcel data would assign market value data to each building in the parcel. For instance, if there were a house and a shed in a parcel with a building assessed value of \$35,000, the house and the shed each would have a building value of \$35,000. The assessed value within the parcel data is the value assigned to the house, not the shed. This problem inflated the market values of the data.

In another example, the Zion Nuclear Power Plant had a small building situated on its property that was located within the floodplain. The parcel data assigned the small structure the building value of the entire property, which was approximately 45 million dollars. This was also the case at the Abbott Laboratories property where six structures were assigned the total value of all buildings, adding almost one billion dollars to the total market value in the floodplain.

To gain the most accurate market value, the highest valued buildings were manually located and the market value was estimated by dividing the total building square feet of the parcel by the square feet of the buildings residing in the floodplain. This value was then

multiplied by the total calculated market value of the parcel. This calculation was completed only for all industrial sites and for commercial sites that had market values greater than one million dollars. In the commercial dataset the individual inflated market values, as referred above in the Abbott and Zion Nuclear Power Plant examples, were subtracted from Lake County Stormwater Management Commission (SMC) overall countywide parcel data analysis market value (Methodology 2 in Table 1 on page 11) to obtain the remaining market values that were less than one million dollars. Then the recalculated values were added to the remaining values to obtain the final commercial market values. In the industrial dataset no additional calculation had to be done because all of the structure market values were recalculated.

The buildings in Figure 3-19 that were joined to parcels include only those with an area greater than 1000 square feet. This was done to remove structures such as sheds, water towers, doghouses, etc. that would not have an assessed buildings value within the parcel data. This was again done to reach commonality with the Lake County Department of Information and Technology, GIS and Mapping Division data that had selected out structures less than 1000 square feet.

The four structure types (residential, commercial, industrial, and agricultural) were shown by grouping the four types into categories and selecting by attributes in the attribute table of the floodplain parcel data. For example, "commercial improved" and "commercial unimproved" were grouped into "commercial" and "residential unimproved" and "residential improved" were categorized as "residential". Figure 3-19 displays the total market value of floodplain structures, and also demonstrates where the majority of the market value is distributed.

Figures 3-20, 3-21, 3-22, and 3-23

Figures 3-20 and 3-21 display populations residing within the 100-year floodplain and floodway and Figures 3-22 and 3-23 show two high-risk age groups residing in the floodplain. Figures 3-20 and 3-21 were constructed by using the residential point dataset from Figure 3-19 and multiplying the number of "residential improved" structures by 2.88, which is the average household size for Lake County (Lake County Regional Framework Plan, 2004, 8-2). This was done to gain a more accurate representation of how many people resided within the floodplain. The estimation was more accurate than the original process of *intersecting* large census population blocks with the floodplain boundary. The original process had resulted in the Lake Michigan watershed showing zero people residing in the floodplain; while Figure 3-19 showed that there were 184 "residential improved" structures within the Lake Michigan watershed floodplain. It seemed illogical to show 184 residential structures in the Lake Michigan watershed's floodplain with no people residing with the floodplain. That is why the methodologies for Figures 3-20 and 3-21 were changed. It was done to gain a more accurate estimation of how many people reside within the floodplain so that planning could be more efficiently conducted with a more representative number.

Figures 3-22 and 3-23 did not have a switch in methodologies because there was not a published average number of elderly or children per household under five in Lake County. Without an average number, an estimation of the "residential improved" class from Figure 3-19 could not be made. Figures 3-22 and 3-23 are composed of two age groups, children under the age of five and adults over the age of 65. These figures utilize census block polygon data in which each polygon references a number of people and also shows age groups, gender, race, etc. The polygon data was overlaid with the floodplain and floodway boundary and the polygons that resided in the floodplain and floodway were selected using the *[completely contained]* methodology. The output data was then *spatially joined* with the watershed boundary data in order for the data to be represented graphically in the tables. Table 3-23 in the County-Wide All Natural Hazard Mitigation Plan (2005) for Lake County. The tables are categorized by subwatershed to display more specifically where the majority of the people within the age groups resided and to show which subwatersheds should take more steps in preparation for assisting these age groups during time of flooding. In times of flooding these two populations can have reduced mobility and awareness to retreat from flooded areas The figures were constructed to show the places in which vulnerable populations resided, however, because of limitation of the dataset, some vulnerable population sites, for example, day cares and nursing homes, were not included in the figures. By mapping the areas in which these populations reside, the figures will help authorities identify places that may need more urgent assistance.

Figures 3-24 and 3-25

Figures 3-24 and 3-25 show critical facilities such as fire departments, hospitals, police stations, schools, and airports that reside in the floodplains and floodways. These structures are important to flood emergency managers because they can be used as staging areas and control posts. It is also necessary to recognize that some of these facilities are susceptible to flooding and could be a hindrance to emergency management efforts or contain vulnerable populations that would need greater levels of assistance during a flood event. This dataset was derived by manually excluding some facilities such as golf courses and colleges out of the landmark dataset. The existing landmarks were then *intersected* with the floodplain and floodway boundaries resulting in the mapped dataset.

Figures 3-26, 3-27, and 3-28

The flood audit data were first formatted in Microsoft Excel and then the locations were individually inputted into GIS by locating the addresses in the Lake County parcel data. Point data were then created for individual locations and the previous flood audit dataset was added to the newly created point data. The data was then analyzed per watershed and subwatershed by *spatially joining* with the boundary data. In Figure 3-27 the flood audit locations were *intersected* with the floodplain and floodway to show how many of the flood audit locations resided within the floodplains or floodways.

Figures 3-29 and 3-30

These two figures display nine different land uses associated with the floodplain and floodway. This data was extracted from the Lake County land use study of 2001. The data was first categorized by land use; for example, "single family" and "multi family" housing became "residential" and "office" and "retail/commercial" became "commercial". The land use data was then selected into the floodplains and floodways by the identifier *{does the polygon intersect the floodplain}*. The output of the selection operation was then manually inspected for large land use tracts in which only a minority of its area was located within the floodplains or floodways boundary.

Dataset Comparison

The four methodologies that were utilized for this comparison are summarized in Table 1. One item that all four methodologies have in common is that they only include structures with an area greater than 1000 square feet. It appears the Lake County Department of Information and Technology, GIS and Mapping Division utilized Methodology 1 to estimate the values used the assessor's data for their floodplain market analysis. SMC utilized Methodology 2 to develop its

initial estimate of the market value of structures in the floodplains. Methodology 2 used the Lake County parcel data as its source for market values. SMC developed Methodology 3 based on the discrepancy between the All Hazards plan estimate (Methodology 1) and the initial SMC estimate (Methodology 2). Methodology 3 is SMC's attempt to verify that the data source used by SMC would produce similar results if Methodology 1 is utilized. SMC utilized Methodology 4 to refine its initial market value estimate. Methodology 4 specifically refined the value of structures located in "industrial" and "commercial" land use types. Although it is still only an estimated value, the value calculated using Methodology 4 is believed to be the most representative estimate of the total market value of significant (>1000 square feet) structures in the floodplain.

Table 1

Methodology	Source	Multiplier	Structures	Market Value	Type of Building Value Data
1	Lake County IT GIS	3.0	5603	\$5,875,595,805	Assessor Data
2	Lake County SMC	3.2	5540	\$3,617,507,417	Parcel Data
3	Lake County SMC	3.0	5540	\$5,824,662,035	Parcel Data
4	Lake County SMC	3.2	5540	\$1,708,162,597	Parcel Data

One of the reasons for the large discrepancy in the total market value for structures existing in the floodplain is the difference in analysis methodologies between the two studies. The largest discrepancy between Methodology 3 and Methodology 4 is that Methodology 3 shows parcels in the floodplain that do not have any structures referenced to them. Methodology 4 shows the floodplain structures *spatially joined* to the parcels, which resulted in the current total market value for Methodology 2. Methodology 4 is different from Methodology 2 because Methodology 4 manually recalculated market values for "commercial" and "industrial" land uses. The recalculation resulted in a difference in market value of \$1,915,344,821 between Methodologies 2 and 4.

Lake County Department of Information and Technology, GIS and Mapping Division may have divided by 0.33, which is equivalent to multiplying by 3.0, which is the "rule of thumb" factor for estimating market value. Methodology 3 used a 3.0 multiplier to maintain consistency with the multiplier for Methodology 1. SMC used a 3.2 market value multiplier for Methodologies 2 and 4, because SMC's experience is that the 3.0 multiplier is too low for the Lake County area. Even though the market value multipliers were different between the two studies, the most significant factors affecting the total market value discrepancy appear to be:

- the more detailed evaluation of costs for "industrial" and "commercial"
 properties, and
- 2) the joining of floodplain structures to the parcel layer, instead of the outright intersection of the parcel data with the floodplain boundary.

Results

Results are included on Figures 3-15 through 3-30 and on the Tables 3-22 through 3-28 in the County-Wide All Hazard Mitigation Plan (2005) for Lake County.

Flood Audit Locations			
Number	Street	City	
35	Arlington	Fox Lake	
26129	Duck	Antioch	
152	Eagle Point	Fox Lake	
160	Eagle Point	Fox Lake	
161	Eagle Point	Fox Lake	
165	Eagle Point	Fox Lake	
42493	Forest	Antioch	
25705	Fredrick	Antioch	
120	Grand	Fox Lake	
400	Grand	Fox Lake	
98	Keystone	Fox Lake	
410	Kings	Fox Lake	
41797	Lotus	Antioch	
35630	Marine	Fox Lake	
41731	Circle	Antioch	
522	Park	Fox Lake	
44	Pistakee Lake	Fox Lake	
35644	Sheridan	Fox Lake	
41878	Venn	Antioch	
20758	Aspen	Deerfield	
20759	Aspen	Deerfield	
20729	Aspen	Deerfield	
20730	Aspen	Deerfield	
20741	Aspen	Deerfield	
20742	Aspen	Deerfield	
15887	Pekara	Deerfield	
15270	Pekara	Deerfield	
15977	Pekara	Deerfield	
15873	Pekara	Deerfield	
14966	Walnut	Deerfield	
14998	Walnut	Deerfield	
15106	Walnut	Deerfield	
20809	Birch	Deerfield	
20853	Birch	Deerfield	
20940	Dogwood	Deerfield	
15008	Walnut	Deerfield	
14982	Walnut	Deerfield	
14946	Walnut	Deerfield	
14928	Walnut	Deerfield	
901	Clearbrook Park	Mundelein	
917	Clearbrook Park	Mundelein	
922	Clearbrook Park	Mundelein	
929	Clearbrook Park	Mundelein	
419	Rays	Mundelein	
443	Rays	Mundelein	
509	Rays	Mundelein	
228	Shady	Mundelein	
426	Shady	Mundelein	
18349	Shady	Mundelein	
937	Winthrop	Mundelein	

	Flood Audit Locatio	ns
Number	Street	City
954	Winthrop	Mundelein
426	Pleasure	Mundelein
526	Pleasure	Mundelein
425	Rays	Mundelein
308	Shady	Mundelein
316	Shady	Mundelein
916	Stratford	Mundelein
938	Winthrop	Mundelein
950	Winthrop	Mundelein
433	Pleasure	Mundelein
525	Pleasure	Mundelein
312	Shady	Mundelein
1151	Kilbourne	Gurnee
1151	Kilbourne	Gurnee
1300	Skokie	Gurnee
1313	Skokie	Gurnee
4160	Grove	Gurnee
4170	Grove	Gurnee
4180	Grove	Gurnee
4200	Grove	Gurnee
4210	Grove	Gurnee
4220	Grove	Gurnee
4240	Grove	Gurnee
4230	Grove	Gurnee
4806	Grand	Gurnee
4821	Grand	Gurnee
4885	Grand	Gurnee
729	Milwaukee	Gurnee
900	Kilbourne	Gurnee
940	Kilbourne	Gurnee
4690	Old Grand	Gurnee
991	Kilbourne	Gurnee
1001	Kilbourne	Gurnee
1018	Kilbourne	Gurnee
1020	Kilbourne	Gurnee
1028	Kilbourne	Gurnee
1046	Kilbourne	Gurnee
1054	Kilbourne	Gurnee
1062	Kilbourne	Gurnee
1072	Kilbourne	Gurnee
1100	Kilbourne	Gurnee
1100	Kilbourne	Gurnee
1122	Kilbourne	Gurnee
1310	Kilbourne	Gurnee
1351	Skokie	Gurnee
827	Emerald	_
881	Emerald	Gurnee
		Gurnee
903 917	Emerald	Gurnee
	Emerald	Gurnee
931	Emerald	Gurnee

	Flood Audit Locatio	ns
Number	Street	City
943	Emerald	Gurnee
4548	Old Grand	Gurnee
4560	Old Grand	Gurnee
4580	Old Grand	Gurnee
4555	Old Grand	Gurnee
4587	Old Grand	Gurnee
4606	Old Grand	Gurnee
4609	Old Grand	Gurnee
4611	Old Grand	Gurnee
4617	Old Grand	Gurnee
4620	Old Grand	Gurnee
4628	Old Grand	Gurnee
4630	Old Grand	Gurnee
4634	Old Grand	Gurnee
4625	Old Grand	Gurnee
4639	Old Grand	Gurnee
4641	Old Grand	Gurnee
4649	Old Grand	Gurnee
4655	Old Grand	Gurnee
4673	Old Grand	Gurnee
646	O'Plaine	Gurnee
657	O'Plaine	Gurnee
658	O'Plaine	Gurnee
663	O'Plaine	Gurnee
667	O'Plaine	Gurnee
4343	Old Grand	Gurnee
4407	Old Grand	Gurnee
4409	Old Grand	Gurnee
4411	Old Grand	Gurnee
4413	Old Grand	Gurnee
4437	Old Grand	Gurnee
4445	Old Grand	Gurnee
4459	Old Grand	Gurnee
4460	Old Grand	Gurnee
4473	Old Grand	Gurnee
4489	Old Grand	Gurnee
4510	Old Grand	Gurnee
4528	Old Grand	Gurnee
604	O'Plaine	Gurnee
610	O'Plaine	Gurnee
618	O'Plaine	Gurnee
4542	McClure	Gurnee
4554	McClure	Gurnee
4563	McClure	Gurnee
4565	McClure	Gurnee
4567	McClure	Gurnee
4579	McClure	Gurnee
4591	McClure	Gurnee
4616	McClure	Gurnee
573	O'Plaine	Gurnee
5/0	Orianie	Guillee

Number Street City 607 O'Plaine Gurnee 4344 McClure Gurnee 4358 McClure Gurnee 4376 McClure Gurnee 4390 McClure Gurnee 4400 McClure Gurnee 4410 McClure Gurnee 4426 McClure Gurnee 4427 McClure Gurnee 4439 McClure Gurnee 4450 McClure Gurnee 4451 McClure Gurnee 4450 McClure Gurnee 4481 McClure Gurnee 4481 McClure Gurnee 4412 Robin Gurnee 4431 Robin Gurnee 4432 Robin Gurnee 4437 Robin Gurnee 4450 Robin Gurnee 561 First Gurnee 564 First Gurnee
607 O'Plaine Gurnee 4344 McClure Gurnee 4358 McClure Gurnee 4376 McClure Gurnee 4390 McClure Gurnee 4400 McClure Gurnee 4410 McClure Gurnee 4410 McClure Gurnee 4426 McClure Gurnee 4427 McClure Gurnee 4428 McClure Gurnee 4430 McClure Gurnee 4451 McClure Gurnee 44451 McClure Gurnee 44451 McClure Gurnee 44412 Robin Gurnee 44413 Robin Gurnee 4432 Robin Gurnee 4433 Robin Gurnee 4450 Robin Gurnee 561 First Gurnee 578 First Gurnee 629 First Gurnee
4358 McClure Gurnee 4376 McClure Gurnee 4390 McClure Gurnee 4400 McClure Gurnee 4410 McClure Gurnee 4426 McClure Gurnee 4427 McClure Gurnee 4427 McClure Gurnee 4439 McClure Gurnee 4450 McClure Gurnee 4451 McClure Gurnee 4451 McClure Gurnee 4441 McClure Gurnee 4412 Robin Gurnee 4431 McClure Gurnee 4432 Robin Gurnee 4433 Robin Gurnee 4434 Robin Gurnee 4437 Robin Gurnee 561 First Gurnee 564 First Gurnee 578 First Gurnee 625 Grand Gurnee </td
4376 McClure Gurnee 4390 McClure Gurnee 4400 McClure Gurnee 4410 McClure Gurnee 4426 McClure Gurnee 4427 McClure Gurnee 4427 McClure Gurnee 4439 McClure Gurnee 4450 McClure Gurnee 4451 McClure Gurnee 4466 McClure Gurnee 4481 McClure Gurnee 4412 Robin Gurnee 4415 Robin Gurnee 4432 Robin Gurnee 4437 Robin Gurnee 4450 Robin Gurnee 561 First Gurnee 564 First Gurnee 578 First Gurnee 629 First Gurnee 302 West Gurnee 330 West Gurnee
4390 McClure Gurnee 4400 McClure Gurnee 4410 McClure Gurnee 4426 McClure Gurnee 4427 McClure Gurnee 4428 McClure Gurnee 4439 McClure Gurnee 4450 McClure Gurnee 4451 McClure Gurnee 4466 McClure Gurnee 4481 McClure Gurnee 4481 McClure Gurnee 4412 Robin Gurnee 4415 Robin Gurnee 4432 Robin Gurnee 4437 Robin Gurnee 4450 Robin Gurnee 561 First Gurnee 564 First Gurnee 578 First Gurnee 629 First Gurnee 302 West Gurnee 312 West Gurnee
4400 McClure Gurnee 4410 McClure Gurnee 4426 McClure Gurnee 4427 McClure Gurnee 4439 McClure Gurnee 4450 McClure Gurnee 4451 McClure Gurnee 4466 McClure Gurnee 4481 McClure Gurnee 4482 Robin Gurnee 4432 Robin Gurnee 4437 Robin Gurnee 4450 Robin Gurnee 561 First Gurnee 564 First Gurnee 578 First Gurnee 629 First Gurnee 302 West Gurnee 312 West Gurnee 330 West Gurnee 3344 O'Plaine Gurnee 150 GreenHaven Gurnee 150 GreenHaven Gurnee
4410 McClure Gurnee 4426 McClure Gurnee 4427 McClure Gurnee 4439 McClure Gurnee 4450 McClure Gurnee 4451 McClure Gurnee 4466 McClure Gurnee 4481 McClure Gurnee 4482 Robin Gurnee 4432 Robin Gurnee 4437 Robin Gurnee 4450 Robin Gurnee 561 First Gurnee 564 First Gurnee 578 First Gurnee 629 First Gurnee 302 West Gurnee 312 West Gurnee 330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee <t< td=""></t<>
4426 McClure Gurnee 4427 McClure Gurnee 4439 McClure Gurnee 4450 McClure Gurnee 4451 McClure Gurnee 4466 McClure Gurnee 4481 McClure Gurnee 4482 Robin Gurnee 4432 Robin Gurnee 4437 Robin Gurnee 4450 Robin Gurnee 561 First Gurnee 564 First Gurnee 578 First Gurnee 629 First Gurnee 302 West Gurnee 312 West Gurnee 330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 150 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee
4427 McClure Gurnee 4439 McClure Gurnee 4450 McClure Gurnee 4451 McClure Gurnee 4466 McClure Gurnee 4481 McClure Gurnee 4412 Robin Gurnee 4415 Robin Gurnee 4437 Robin Gurnee 4450 Robin Gurnee 561 First Gurnee 564 First Gurnee 578 First Gurnee 629 First Gurnee 302 West Gurnee 312 West Gurnee 330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 150 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee
4439 McClure Gurnee 4450 McClure Gurnee 4451 McClure Gurnee 4466 McClure Gurnee 4481 McClure Gurnee 4482 Robin Gurnee 4432 Robin Gurnee 4437 Robin Gurnee 4450 Robin Gurnee 561 First Gurnee 564 First Gurnee 578 First Gurnee 629 First Gurnee 302 West Gurnee 312 West Gurnee 330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 124 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee
4450 McClure Gurnee 4451 McClure Gurnee 4466 McClure Gurnee 4481 McClure Gurnee 4412 Robin Gurnee 4415 Robin Gurnee 4432 Robin Gurnee 4437 Robin Gurnee 4450 Robin Gurnee 561 First Gurnee 564 First Gurnee 578 First Gurnee 629 First Gurnee 302 West Gurnee 302 West Gurnee 312 West Gurnee 330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 124 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee
4451 McClure Gurnee 4466 McClure Gurnee 4481 McClure Gurnee 4412 Robin Gurnee 4415 Robin Gurnee 4437 Robin Gurnee 4450 Robin Gurnee 561 First Gurnee 564 First Gurnee 578 First Gurnee 629 First Gurnee 302 West Gurnee 302 West Gurnee 312 West Gurnee 330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 124 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee
4466 McClure Gurnee 4481 McClure Gurnee 4412 Robin Gurnee 4415 Robin Gurnee 4432 Robin Gurnee 4437 Robin Gurnee 4450 Robin Gurnee 561 First Gurnee 564 First Gurnee 578 First Gurnee 629 First Gurnee 625 Grand Gurnee 302 West Gurnee 312 West Gurnee 330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 124 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee
4481 McClure Gurnee 4412 Robin Gurnee 4415 Robin Gurnee 4432 Robin Gurnee 4437 Robin Gurnee 4450 Robin Gurnee 561 First Gurnee 564 First Gurnee 578 First Gurnee 629 First Gurnee 625 Grand Gurnee 302 West Gurnee 312 West Gurnee 330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 124 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee
4412 Robin Gurnee 4415 Robin Gurnee 4432 Robin Gurnee 4437 Robin Gurnee 4450 Robin Gurnee 561 First Gurnee 564 First Gurnee 578 First Gurnee 629 First Gurnee 302 West Gurnee 302 West Gurnee 312 West Gurnee 330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 124 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee 221 Minihaven Gurnee
4412 Robin Gurnee 4415 Robin Gurnee 4432 Robin Gurnee 4437 Robin Gurnee 4450 Robin Gurnee 561 First Gurnee 564 First Gurnee 578 First Gurnee 629 First Gurnee 302 West Gurnee 302 West Gurnee 312 West Gurnee 330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 124 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee 221 Minihaven Gurnee
4415 Robin Gurnee 4432 Robin Gurnee 4437 Robin Gurnee 4450 Robin Gurnee 561 First Gurnee 564 First Gurnee 578 First Gurnee 629 First Gurnee 302 West Gurnee 302 West Gurnee 312 West Gurnee 330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 124 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee 221 Minihaven Gurnee
4432 Robin Gurnee 4437 Robin Gurnee 4450 Robin Gurnee 561 First Gurnee 564 First Gurnee 578 First Gurnee 629 First Gurnee 625 Grand Gurnee 302 West Gurnee 312 West Gurnee 330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 124 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee 221 Minihaven Gurnee
4437 Robin Gurnee 4450 Robin Gurnee 561 First Gurnee 564 First Gurnee 578 First Gurnee 629 First Gurnee 625 Grand Gurnee 302 West Gurnee 312 West Gurnee 330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 124 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee 221 Minihaven Gurnee
561 First Gurnee 564 First Gurnee 578 First Gurnee 629 First Gurnee 625 Grand Gurnee 302 West Gurnee 312 West Gurnee 330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 124 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee 221 Minihaven Gurnee
564 First Gurnee 578 First Gurnee 629 First Gurnee 625 Grand Gurnee 302 West Gurnee 312 West Gurnee 330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 124 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee 221 Minihaven Gurnee
564 First Gurnee 578 First Gurnee 629 First Gurnee 625 Grand Gurnee 302 West Gurnee 312 West Gurnee 330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 124 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee 221 Minihaven Gurnee
578 First Gurnee 629 First Gurnee 625 Grand Gurnee 302 West Gurnee 312 West Gurnee 330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 124 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee 221 Minihaven Gurnee
629 First Gurnee 625 Grand Gurnee 302 West Gurnee 312 West Gurnee 330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 124 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee 221 Minihaven Gurnee
625 Grand Gurnee 302 West Gurnee 312 West Gurnee 330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 124 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee 221 Minihaven Gurnee
302 West Gurnee 312 West Gurnee 330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 124 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee 221 Minihaven Gurnee
312 West Gurnee 330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 124 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee 221 Minihaven Gurnee
330 West Gurnee 335 West Gurnee 344 O'Plaine Gurnee 124 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee 221 Minihaven Gurnee
335 West Gurnee 344 O'Plaine Gurnee 124 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee 221 Minihaven Gurnee
344 O'Plaine Gurnee 124 GreenHaven Gurnee 150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee 221 Minihaven Gurnee
150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee 221 Minihaven Gurnee
150 GreenHaven Gurnee 174 GreenHaven Gurnee 200 Minihaven Gurnee 221 Minihaven Gurnee
200MinihavenGurnee221MinihavenGurnee
221 Minihaven Gurnee
1820 Skokie Gurnee
951 Emerald Gurnee
4521 Old Grand Gurnee
4531 Old Grand Gurnee
4537 Old Grand Gurnee
2303 20th North Chicago
1215 Argonne North Chicago
1513 Argonne North Chicago
1305 Broadway North Chicago
1929 Dickey North Chicago
1903 Greenfield North Chicago
2029 Grove North Chicago
2031 Grove North Chicago
1914 Hervey North Chicago
2031 Honore North Chicago
2217 Honore North Chicago

	Flood Audit Location	ns
Number	Street	City
2236	Kemble	North Chicago
2240	Kemble	North Chicago
2328	Kemble	North Chicago
2046	Kristian	North Chicago
2209	Kristian	North Chicago
2022	Sherman	North Chicago
2241	Wallace	North Chicago
2033	Winter	North Chicago
2029	Wright	North Chicago
1510	Ferry	Waukegan
1603	Ferry	Waukegan
1626	Rice	Waukegan
1633	Ballentine	Waukegan
1638	Rice	Waukegan
1640	Dickinson	Waukegan
1648	Dickinson	Waukegan
1649	Dickinson	Waukegan
2609	Pine	Waukegan
2613	Pine	Waukegan
2617	Pine	Waukegan
2621	Pine	Waukegan
2625	Pine	Waukegan
2628	Butrick	Waukegan
2629	Pine	Waukegan
2633	Pine	Waukegan
2637	Pine	Waukegan
2701	Pine	Waukegan
2705	Pine	Waukegan
2709	Pine	Waukegan
2713	Pine	Waukegan
2717	Pine	Waukegan
2721	Pine	Waukegan
2725	Pine	Waukegan
2729	Pine	Waukegan
2733	Pine	Waukegan
2735	Pine	Waukegan
2739	Pine	Waukegan
2801	Butrick	Waukegan
2801	Pine	Waukegan
2805	Pine	Waukegan
2809	Pine	Waukegan
2810	Yeoman	Waukegan
2813	Pine	Waukegan
2817	Pine	Waukegan
2821	Pine	Waukegan
2825	Pine	Waukegan
2825	Yeoman	Waukegan
2833	Pine	Waukegan
2837	Pine	Waukegan
2841	Pine	Waukegan

Flood Audit Locations			
Number	Street	City	
2845	Pine	Waukegan	
2849	Pine	Waukegan	
2901	Pine	Waukegan	
2909	Pine	Waukegan	
2911	Pine	Waukegan	
2913	Pine	Waukegan	
2916	Pine	Waukegan	
2917	Butrick	Waukegan	
2917	Pine	Waukegan	
2920	Pine	Waukegan	
2921	Pine	Waukegan	
2925	Pine	Waukegan	
2929	Pine	Waukegan	
2930	Pine	Waukegan	
2800	Elmwood	Waukegan	
2801	Elmwood	Waukegan	
2805	Elmwood	Waukegan	
2737	Lewis	Waukegan	
1801	Ballentine	Waukegan	
1800	Ballentine	Waukegan	
1741	Ballentine	Waukegan	
1700	Bordman	Waukegan	
1645	Whitney	Waukegan	
1632	Whitney	Waukegan	
1628	Whitney	Waukegan	
1624	Whitney	Waukegan	
1634	Partridge	Waukegan	
1616	Ferry	Waukegan	
1638	Frazier	Waukegan	
1637	Frazier	Waukegan	
2835	Lorraine	Waukegan	
1648	McKay	Waukegan	
1644	McKay	Waukegan	
2905	Pine	Waukegan	
2605	Pine	Waukegan	